

Hidden sources of growth? Looking at microenterprises through the competitiveness lens

A review of evidence

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Executive summary

How does the performance of microenterprises, establishments with up to ten employees, affect competitiveness and growth of a regional or national economy? Under what conditions does economic activity in the microenterprise sector become a drag on competitiveness drives? Under what conditions can competitive performance in the sector advance overall productivity gains? How are microenterprises affected by changes in the enabling environment that determine a country's competitiveness ranking?

This paper reviews and summarizes theoretical arguments and empirical evidence on these issues, looking at the micro and small enterprise sector through the competitiveness lens, focusing on *innovative capacity*. Gains in (total factor) productivity drive economic growth, and the essence of competitiveness is the ability to sustain productivity increases through continuous innovation.

A synthesis of current thinking on innovative capacity in microenterprises is complicated by the diversity of the sector in terms of activities pursued and organizational structures. Different concepts of productivity and innovation apply to a self-employed street hawker versus an 8-person upholstery shop. Much of the empirical work on innovative capacity and, by implication, competitiveness has focused on the manufacturing sector, making generalizations to other sectors problematic.

The review of available evidence suggests four main points:

- (1) Neither theory nor empirical evidence make a convincing case for either small or large enterprises being consistently more innovative, or owning a competitive edge. Under the right conditions, small manufacturing firms with fewer than 10 employees can successfully pursue innovation and position themselves competitively. The main exception are one-worker establishments, often little more than a last resort for survival, that are systematically less efficient. The performance of the microenterprise sector helps shape aggregate productivity growth. Moreover, there are some indications that the microenterprise sector in developing countries spawns new entrants into the small (at least 10 employees) enterprise sector at a higher rate than in OECD countries.
- (2) Innovation is increasingly a product of network or relational learning, through interaction with complementors (suppliers, customers) and competitors. All enterprises are part of some cluster, and often more than one, and interactions in the cluster shape innovation and competitive performance. Collaboration among small competitors can open up new technology and management options, and may offset advantages that larger firms derive from any economies of scale. Increasing information flows within clusters lowers the risk of cooperation; brokering linkages to reconfigure and expand clusters increases benefits

from cooperation. Both risk and returns drive the pursuit of competitiveness.

- (3) New technologies are affecting transaction costs in value chains, changing criteria for the "make-or-buy" decision, combining increased centralization for commoditized production with easier access to niche markets for differentiated products. Global producers are becoming global buyers and coordinators, working with groups of small producers in developing countries able to meet their standards. At the same time, advances in communications and logistics facilitate the emergence of niche markets for specialty products. These trends offer new opportunities to innovate for micro and small enterprises, but also imply threats to longer-term growth prospects if innovation is stifled. At the same time, microenterprises focusing on local markets where they enjoy some level of protection (because of small size and limited access) are likely to face increased competition, as markets open up and access costs decline.
- (4) Micro and small enterprises suffer disproportionately from a flawed enabling environment. While the evidence on sector dynamics, such as "graduation," is mixed, high transaction costs imposed by the typical developing-country environment are more easily countered or absorbed by larger firms. Continuing structural reform to lower transaction costs is therefore critical to boosting innovative capacity and productivity growth in the microenterprise sector, and leverage its potential.

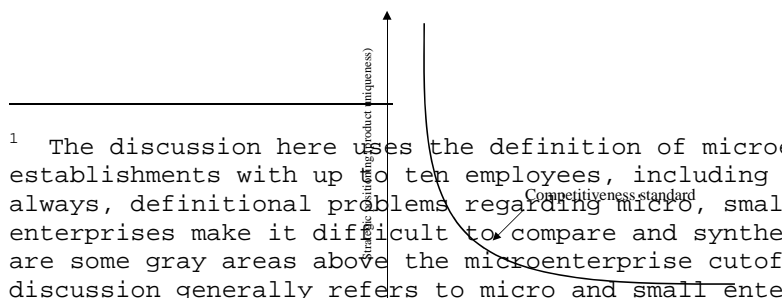
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Introduction: Competitiveness for microenterprises

Much economic activity in developing countries takes place in the microenterprise¹ sector. Many, but by no means all microenterprises in developing countries and transition economies operate in the informal sector, but so do many medium-sized and sometimes even large enterprises.² Clearly, if microenterprises account for a significant portion of total employment, and some fraction of the capital assets used in production, their efficiency matters in determining overall economic performance, as measured by total factor productivity, a commonly accepted measure of aggregate competitiveness.³ This paper seeks to assemble and assess available evidence on the ways in which microenterprises contribute to overall competitiveness and growth, whether—and under what conditions—they act as a growth engine or brake, or are able to achieve sustained productivity gains. In environments where a significant portion of economic activity takes place in enterprises with few employees and limited assets, the failure to raise productivity at the level of micro and small enterprises (MSEs) undermines overall progress toward prosperity.

Competitiveness is emerging as a concern with respect to microenterprises as their markets are beginning to open more to competition. Competitive performance relative to some industry standard—doing at least as well as domestic or foreign competitors in the markets concerned—is essential if MSEs are to break out of the poverty trap. Michael Fairbanks has argued that competitiveness standards—the “competitiveness frontier,” in his words—combine two major dimensions, the strategic positioning of the firm (product, service) in the market, and the efficiency with which the firm produces its products or services. Figure 1 illustrates these tradeoffs for a given competitiveness standard. Moving along the



¹ The discussion here uses the definition of microenterprises as establishments with up to ten employees, including family members. As always, definitional problems regarding micro, small and medium-sized enterprises make it difficult to compare and synthesize studies, so there are some gray areas above the microenterprise cutoff. As a result, the discussion generally refers to micro and small enterprises (MSEs).

² In fact, Ayyagari et al. (2003), find a negative correlation between the relative size of the informal sector and different measures of the importance of small and medium-sized enterprises in the economy.

³ While “country competitiveness” is usually defined in terms of the quality of the business environment as viewed by investors, it is worth noting that the Microeconomic Competitiveness Index of the *Global Competitiveness Report* published by the World Economic Forum is in effect per capita GDP (PPP-adjusted) minus a residual that is not explained by measures of the investment climate. Per capita GDP is a proxy for labor productivity, which of course also reflects differences in the aggregate capital-labor ratio.

curve means that the firm is performing competitively. If it is located to the left and below the standard line, it either requires subsidies or protection or must go out of business. Any point to the right and above the line implies *competitive advantage*.

Figure 1: The axes of competitiveness

Source: Adapted from concepts developed by Michael Fairbanks, ontheFrontier

Competitiveness is a dynamic concept, denoting the ability to sustain increases in (total factor) productivity over time. Sustained productivity gains in turn imply continuous innovation to create additional value, lower costs, or both. Innovation is essential for microenterprises to move to higher-return activities, and to grow and graduate to small and medium-sized enterprise status, creating new employment opportunities. MSEs that fail to raise productivity and achieve competitive standards remain trapped below the poverty threshold, and even where they have breached the threshold, an inability to innovate and adapt implies a continuing threat of descending further into poverty.

This briefing paper cannot hope to cover all of the critical dimensions of the complex relationship between microenterprise activity, productivity gains and macroeconomic growth. Instead, the review focuses on four questions:

- (1) Are there systematic differences in the level of innovative capacity and innovative activity among firms in different size categories? In other words, are small enterprises intrinsically less (or more) innovative than large firms?
- (2) What are the factors that shape innovative capacity and performance?
- (3) How do evolving economic relationships that reflect technological advances, in particular in communications and logistics, and new management structures, such as centralized buying, affect constraints and opportunities for innovation by microenterprises?
- (4) How do changes in the enabling environment, primarily the legal and regulatory framework for business activity, administrative and judicial performance shape innovative capacity and performance in the microenterprise sector?

Looking at these questions through the competitiveness lens gives us a better appreciation of the actual and potential contribution of the microenterprise sector to growth, of the factors influencing that contribution, and of the implications for policy and support. The paper first provides a brief overview of concepts of innovation and innovative capacity. It then addresses the four main points—the relationship between firm size and innovative activity, the role of cluster linkages in driving innovation, the implications of emerging forms of global value chain management, and the impact of

transaction costs imposed by the institutional environment typical for developing countries.

Competitiveness drivers: Innovation and innovative capacity

A common "mental model" of innovation and innovative capacity is one of great leaps forward, the "Eureka!" experiences. The process of "creative destruction" that is central to the Schumpeterian view of economic development certainly implies major discontinuities. Yet most of the innovative activity that drives economic growth is far more gradual, involving minor improvements in products or processes, as Blaug (1999) noted:

... innovations are rarely the dramatic breakthroughs that Schumpeter may have had in mind but rather small improvements in a new process or product in which genuine novelty and imitation-with-a-difference shade imperceptibly into one another. (p. 110)

Moreover, innovation is not the invention per se, but rather the commercial application of new ideas.⁴ Baumol (2002) offers a more comprehensive definition:

... I use the term "innovation," distinguished from invention, in the Schumpeterian sense: as the recognition of opportunities for profitable change and the pursuit of those opportunities all the way through to their adoption in practice ... (p. 10)

In that sense, innovation entails commercially meaningful discontinuities at different levels, in terms of both product and process. In a comprehensive review of innovation research, Garcia and Calantone (2002) categorize innovation in terms of such discontinuities in different areas (marketing vs. technology) at different levels (macro: world, industry, or market vs. micro: firm or consumer). This approach allows them to categorize innovations into one of three groups:

- **radical:** characterized by marketing and technological discontinuities on *both* macro (new to the world, new to the industry, new to the market) and micro levels (new to the firm, new to the consumer);
- **"really new:"** these innovations may involve *either* marketing or technological discontinuities at *either* macro and micro levels;
- **incremental:** innovations that entail discontinuities at the micro level only.

Innovation strategy represents a related dimension. Coombs et al. (1996) distinguish between imitative, exploitative and exploratory approaches. The first involves the adoption of new ideas that others have pioneered. Imitation is the driving force in the traditional view of innovation followed by diffusion, as others follow the

⁴ Scherer (1984) vividly illustrates the distinction between invention and innovation in recounting the roles of Watt and Boulton (and Roebuck) in the introduction of Watt's steam engine.

breakthrough entrepreneur. It is likely to be harder for radical innovations which may be protected by law or other barriers, such as unique competencies. The distinction between exploitation and exploration reflects to some extent the notion of demand pull (the entrepreneur recognizes a need and fills it) versus supply push (an innovation in effect creates a new market).

Microenterprises are most likely to engage in imitative forms of innovation. While MSEs certainly have been responsible for major, radical innovations (just think of the Silicon Valley start-ups), innovation at their level is typically linked more to the incremental and "really new" dimension. For example, the adoption of non-traditional agricultural export products, a shift to premium branded coffee, or the use of modern communications technology to reach new markets represent "really new" innovations, since they are likely to involve discontinuities at both macro and micro levels. Incremental innovations for MSEs may include steps to improve consistency in meeting certain standards in product or service quality. In that respect they differ little from medium-sized or large firms in developing countries, as Cooper (1994) has argued. Limited technical resources and production experience favor such an approach, the success of which depends largely on the ability to react quickly.

Enterprise success and survival are predicated on the ability to innovate and upgrade continuously. Innovation is an entrepreneurial process, not an entrepreneurial accomplishment. What matters is therefore innovative capacity and activity. Unfortunately, they are difficult to observe and measure. Much of the empirical research on innovation and its patterns and determinants has therefore used proxies, often accepting measures of inputs, such as research intensity, as valid indicators of innovative performance. Hyvärinen (1990) provides a good summary of the various types of innovation indicators that have been used in empirical studies.

Firm size, market power, innovation and growth

On the one hand, on the other hand

Are an economy's innovative capacity and energy located in the small enterprise sector or is it predominantly the large firms that determine the pace of innovation? Either possibility has its arguments and advocates. The "big is better" school focuses largely on investment in R&D as the driver of innovation. It can trace its origins to Schumpeter (1942) who argued that short-run protection and market power are needed to enable innovators to reap the benefits of their investments.⁵ Galbraith (1952) expanded on this view by maintaining that the level of R&D required to innovate

⁵ In his earlier work, Schumpeter (1912, 1939) had leaned more toward the independent entrepreneurial start-up type of firm as the driver of innovation in the economy.

successfully had become so costly that only large firms were able to mobilize the needed funds. Therefore, innovation (and productivity growth) in the economy were in fact the domain of large enterprises. In his contribution, Arrow (1962) focused more on what he saw as disincentives to innovation for smaller firms—risk aversion, lack of financial resources, and inability to exploit returns on investment in innovation. In a major recent contribution to this debate, Baumol (2002) focuses on the strategies firms use to reduce the risk and costs of R&D and innovation through licensing, technology sharing arrangements, and informal exchanges to maintain their ability to engage in innovation as a routine activity. Others (Kamien & Schwartz, 1982; Nooteboom, 1994) have argued that large firms are better equipped to undertake effective R&D and innovate because of scale economies. They also maintain that large firms find it easier to obtain financing to convert inventions into innovations.

Even so, there are also strong arguments in favor of small enterprises being more innovative. In a response to Arrow (1962), Demsetz (1969) asks why risk should matter more for small than for a large enterprises. Moreover, he rejects the notion that innovation in a small competitive firm is in greater danger of being appropriated by others, as long as property rights are being enforced. Other arguments in favor of the small firm as innovator point to better internal communication, lower bureaucratic transaction costs, and greater flexibility. Agency problems are less important, given intertwined ownership and management. Finally, tacit knowledge in unique skills helps the firm in protecting its core competencies (Nooteboom, 1994; Rothwell and Dodgson, 1994).

Innovation is not a function of size

The accumulated empirical evidence on the relation between firm size and innovative activity is inconclusive. Early studies, such as Horowitz (1962), suggested a weak positive association. Subsequent research in the late 1960s and throughout the 1970s yielded negative correlations or no relationship. For example, Shrieves (1978) found that *small* firms are more research intensive. Subsequent work did not resolve the issue. For example, Arvanitis (1997) finds *no* difference in the innovative capability of large and small firms for a sample of Swiss enterprises. Nooteboom (1991), Nooteboom and Vossen (1995), and Vossen and Nooteboom (1996) find that small firms participate less in R&D, but when they participate they tend to do so more intensively than large firms. These studies also suggest that small firms produce more innovation output per unit of input. Similar conclusions hold for research on these issues in developing countries, including India and Latin American and African countries. Summing up, Subodh (2002) concludes:

... empirical evidence does not offer a consensus to support the Schumpeterian hypothesis of large firm size leading to greater innovation. The studies also conclude that firm size alone cannot affect R&D intensity, and that other variables such as

technological opportunity and appropriability have an influence on R&D intensity. (p. 9)

One of the few recent studies of the association between firm size and productivity growth—a better measure of competitiveness than R&D efforts—is Pagano and Schivardi (2000), using a data set for European manufacturing sectors, which includes a small size class with 1-9 employees. They find that firm size is positively associated with the rate of growth of value added per worker, even after controlling for differences in capital/labor ratios. They view this finding as being in contrast to the conventional wisdom that small firms are the most dynamic component and grow faster than large firms. Part of the explanation is that fast growth for small (young) firms is contingent on survival, so that higher rates of growth among surviving MSEs may be partly obscured by the poor performance of those going out of business. In effect, at any given time, the small enterprise sector comprises two major groups—start-ups that are likely to score higher on the innovative capacity scale, and enterprises that have stayed small because they are performing poorly in terms of innovation. The churning at the bottom of the firm size spectrum may distort results. The following data for the US provide some idea of the extent of churning:

Table 1: Overall new business failure rates (US)

By the end of	Percentage that fail
1 st year	20 - 40 percent
2 nd year	30 - 60 percent
10 th year	90 percent

Source: Lange (2003)

Not surprisingly, survival is positively related to growth. The six-year survival rate for zero-growth firms is 28 percent, while medium (5-9 percent) and high-growth (10 percent or more) firms have a 75-78 percent chance to survive at least six years (Lange, 2003). There is some evidence to suggest that microenterprises in developing countries have higher survival rates, presumably in part because of the paucity of viable alternatives.

New data are becoming available that may allow for a more direct assessment of the relationship between firm size and productivity growth, especially in developing countries. Ayyagari et al. (2003) discuss a new database for small and medium-sized enterprises "across the globe." While the definition of SME in this database is at the high end—the cutoff employment is 250 employees—coverage is balanced (13 low-income, 24 middle-income, and 17 high income countries), and the data set includes measures of the importance of the informal sector in the economy. Initial findings raise some interesting questions. For example, the data indicate that the share of SMEs in total employment is lowest for low-income countries

(under 20 percent) and highest for high-income countries (just under 60 percent). Even if the SME and informal sector are taken together, their share grows from low to high income countries, although the differences are less pronounced. These findings appear in contrast to the size distribution of *manufacturing* employment by GNP per capita reported by Snodgrass and Biggs (1996), which shows in effect the opposite pattern. A major part of the explanation lies in the different size class definitions used (Snodgrass and Biggs define establishments with 100 employees or more as "large") and in the sectoral focus.

As a result of the size association, the SME share in total employment in the Ayyagari et al. (2003) study correlates positively and significantly with GDP per capita (0.43), while the corresponding correlation for the incidence of informal sector activity is negative and significant (-0.72). That implies that the correlation between the SME share in total employment and the relative size of the informal sector is also negative (-0.35, significant at the 10-percent level).

Scale economies appear negligible

To what extent are productivity gains a function of economies of scale? Tybout (1998) summarizes the empirical evidence on that issue and concludes that "the efficiency costs of being small are not crippling—if present at all—once the one-worker threshold has been traversed. Most studies of manufacturing in developing countries find returns to scale very close to unity across industries.

Another data source that sheds some light on the relationship between firm size and innovative activity is the survey and related information collected by the Global Entrepreneurship Monitor (GEM), carried out by the London Business School and Babson College (Reynolds et al., 2002). The survey seeks to ascertain the level of entrepreneurial activity in a broad sample of countries, 29 in 2001. Overall, the study found that of the 1.4 billion working-age (20-64 years of age) people in these countries, just under 10 percent were engaged in some form of entrepreneurial activity, ranging from 5 percent of the adults in Belgium and Japan to 18 percent in Mexico. The survey distinguishes between opportunity and necessity entrepreneurship—people became entrepreneurs because there was a unique market opportunity (6.5 percent of the working age population), or because it was the best option available (2.5 percent). One puzzling result is that there is no association between the incidence of opportunity entrepreneurship and overall economic growth, while the prevalence of necessity ownership correlates positively with national growth, especially when countries highly dependent on international trade are excluded. The authors suggest no explanation, but conclude that "...in developing countries necessity entrepreneurship may have a strong macro-economic function." (p. xviii)

Warner (2001) seeks to get at the contribution of start-ups to growth by constructing a "creativity index," using survey responses from the *Global Competitiveness Report* published by the World Economic Forum. His creativity index, which combines ratings on innovation, technology transfer and ease of business start-ups, shows a positive association with average per capita GDP growth during the 1990s. Warner then compares *changes* in ratings on the GDR technology questions with per capita growth rates; finding no correlation, he concludes that "economic creativity causes growth and not the other way round."

Competition does not stifle innovation

If market power promotes innovation, competition would curb it. The empirical evidence neither supports nor rejects that contention. Taken together, the findings of a large number of empirical studies neither confirm nor reject the notion that market power stimulates innovation—or that competition stifles it. As far back as 1965, two major studies came to opposite conclusions: Scherer (1965) found a positive, but weak association between measures of market concentration and R&D activity, while Williamson (1965) showed an inverse relationship. Later research, such as Scherer (1967), suggested a non-linear relationship: the share of R&D employment in total employment initially increased and then decreased with market concentration. Others also noted a similar "inverted-U" relationship; for example, Braga and Willmore (1991) found this pattern in their study of Brazilian establishments.

One explanation for such a pattern is the interplay of two countervailing forces: increasing market power allows innovators to appropriate the rewards of their activities. At the same time, increasing market power reduces the threat from competitors, thereby lowering incentives to engage in innovation. As long as the firm can collect monopoly rents, there is little point in introducing new products or processes. Because of this relationship, Baumol's (2002) study of the growth performance of capitalism focuses on oligopolistic competition—the mid-range of market concentration.

However, Nelson and Winter (1982) and others have shown that apparent relationships between market concentration and innovation may be an artifact, attributable to mostly sectoral factors, such as demand conditions, technological opportunities, or the nature of capital markets. In any case, questions about the direction of causality remain: successful innovators may drive competitors out of businesses, thereby increasing market concentration. Improved strategic positioning, as sketched in Figure 1, is the result of innovative activity—defining or delineating a market in which the enterprise (or enterprise group) can establish a dominant position.

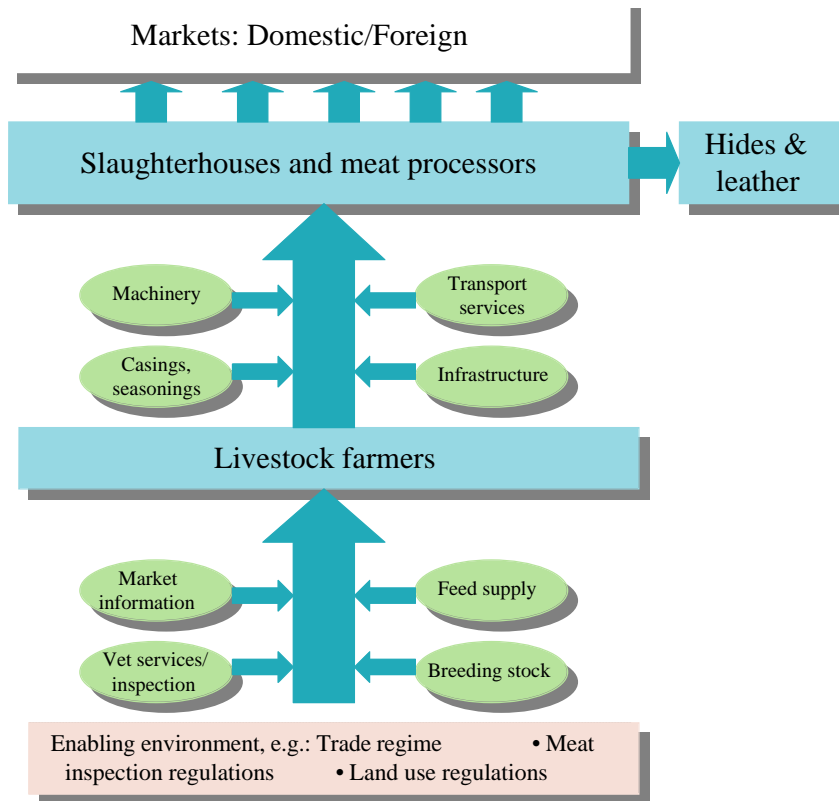
Innovation is a network process

All firms belong to clusters

There is a growing consensus that competitiveness and innovation need to be viewed in the context of the networks to which large, medium-sized, small and microenterprises belong. Economic and other transaction linkages tie any enterprise into market networks, or *economic clusters*. Clusters comprise all participants in the respective value chain, "complementors" as well as competitors. Complementors include upstream suppliers of factors of production (labor, capital), other inputs, knowledge, and support services, including infrastructure services; this group also includes downstream clients, customers, and providers of intermediation services. In that sense, every enterprise is part of a cluster. Micro and small enterprises, small traders, small farmers and producers in the informal sector included, are no exception. In fact, Granovetter (1985) and others have stressed that firms are *embedded* in socioeconomic networks that involve more than transactions. What matters is not so much whether a cluster exists, but how well it performs in boosting systemic innovation and competitiveness and reducing transaction costs.

The competitiveness of the cluster depends on competitive performance and therefore innovation at *all* levels of the value chain. Upstream linkages determine the cost and quality of inputs which in turn shape the competitive performance of the firm; downstream linkages matter in terms of providing price and other signals that guide the firm's innovative activities. Finally, network (mostly lateral) linkages complement the vertical linkages of the value chain to form a cluster.

The network, or cluster, comprises both lateral linkages among competitors, and vertical linkages along the value chain. The following example, for a meat and skins & hides cluster, provides an illustration of both types of linkages:



Network and relational learning drive innovation

Vertical and lateral linkages that define a cluster shape both the incentives and the capacity for innovation for each firm, and thereby at the level of cluster itself. In fact, in OECD parlance, clusters are *innovation networks*. Innovation research in the 1980s and 1990s in the US and other OECD countries showed that the traditional view of innovation (invention-commercialization by a pioneer-diffusion to others) was inappropriate. Von Hippel (1988), von Hippel and Tyre (1995) and Utterback (1994) found that firms are getting many if not most of their innovative ideas from their suppliers and customers, and that a good part of Blaug's routine innovation is driven by exchanges with competitors.

Both "really new" and incremental innovations depend on network or relational learning, especially given the greater likelihood for MSEs to rely on an imitative innovation strategy. As McDermott (2002) observed for Argentina,

... network relations can act as effective governance mechanisms in pressing competitors and collaborators alike to compete on quality and productivity (and not just cost) and act as vital sources of shared learning, knowledge creation, and risk.

Effective network linkages raise innovative capacity for each node in the network by increasing exposure to ideas and opportunities. They also reduce the transaction costs of developing and adopting innovations. If MSEs can observe the success or failure of different

approaches among competitors or complementors, or obtain information on likely outcomes from trustworthy sources in the network, the risk of committing to innovative endeavors decreases. The greater the uncertainty, the greater the value of linkages. For example, Anand and Khann (2000) found that the effects of learning on value creation in alliances were strongest for *research* joint ventures, dealing with situations characterized by greater contractual ambiguity, and weakest for marketing ventures.

Clusters that include MSEs in developing countries and transition economies pose special challenges. Typically, both lateral and vertical linkages are weak, reflecting low degrees of market integration and feeble market institutions. The links of MSEs to global or local value chains are tenuous, often oriented toward individual transactions rather than economic relationships. Any lateral linkages tend to be characterized by high levels of distrust, hamstringing efforts to encourage cooperation because of fears of free ridership, or abuse of confidential information. While trust may not always promote efficiency or reduce the transaction costs of collective actions (cf. Levi, 2000, p. 152), collaboration demands some form of protection against exploitation. Many of the environments in which MSEs are operating lack the needed institutional safeguards, making it difficult to apply sanctions to enforce compliance with norms and raise trustworthiness.

At the same time, MSEs are usually highly dependent on market intermediaries, such as traders. While these intermediaries play a vital role in the value chain, their position gives them considerable leverage that is likely to be greater as long as the MSEs concerned compete rather than collaborate. In these cases, the distance to end consumers increases, cutting producers off from information on requirements and preferences. At the level of the cluster, the dominant position of market intermediaries often precludes options for backward or forward integration that can reduce transaction costs and improve systemic competitiveness.

These special challenges hamper the transfer of lessons from the experience of promoting competitiveness in MSEs in OECD countries. Even so, a number of lessons have emerged that can guide efforts to enhance MSE performance through cluster development. Strengthening network linkages as a basis for relational learning, innovation, and higher productivity and income involves two principal elements—strengthening within-group linkages, and brokering cross-group linkages. The former seeks to promote what Coleman (1988, 1990) has characterized as network “closure,” a state in which no one can escape the notice of others. In such a dense network, information flows freely, giving all members access to relevant economic information. In addition, Coleman argues that network closure facilitates sanctions for those who violate the trust of the others, thereby lowering the risk of cooperation.

The second element, brokering cross-group linkages or bridging "structural holes," uses some of the concepts mostly associated with the work of Burt (1992, 2001). His argument is that weak linkages in networks result in structural holes that offer an entrepreneurial opportunity for creating value by brokering linkages. The brokerage function includes managing information flows and controlling joint action. In Burt's view, bridging structural holes creates advantage by increasing the value of cooperation. These linkages also become instrumental in offsetting a potential drawback of network closure in economic groups—the built-in incentive to remain within the confines of the group, rather than to pursue growth beyond. For example, rotating-credit associations that rely on reputation and social pressure as private enforcement mechanisms for credit contracts may provide little incentive to seek more advanced financing for successful microentrepreneurs in the group. Brokering linkages with outside sources of finance complement within-group dynamics.

Nooteboom (undated) argues much along the same lines regarding the need for distance as well as closeness in innovation networks. In his view, vertical or lateral cooperation does not harm competition, and may have beneficial effects for innovation and the diffusion of innovation. Taking a *resource* or *competence* view of the firm, he stresses that competencies are firm-specific and cumulative. Relying on them, focusing in one direction involves the risk of missing out on perceptions of opportunities and threats from other directions. "To cover for this, one needs complementary, outside sources of cognition... Such outside sources of complementary cognition require a 'cognitive distance' which is sufficiently small for understanding but sufficiently large to yield non-redundant, novel knowledge. For the external sources to maintain novelty it is crucial to maintain distance." (p. 3)

In operational terms, efforts to expand the circle of contacts for groups of small producers may help them to identify opportunities for forward and backward linkages, gain a better appreciation of market requirements, preferences and standards, and reach greater exposure to new technologies and market trends. In combination with greater group cohesion (closure), brokering new linkages also includes the possibility of improved access to resources, in particular finance.

While current views of the innovation process stress networking and cooperation, the empirical evidence is sometimes ambiguous. Two studies of innovation in small enterprises in the UK illustrate this point. Neely and Hii (1999) find that outside sources of innovation ideas matter greatly, as shown by the percentages of small business owners and managers in their sample citing these sources:

1. Within company internally (70.0 percent)
2. Supplier of materials and components (61.3 percent)
3. Clients or customers (50.0 percent)

4. Suppliers of equipment (50.0 percent)

5. Professional conferences and meetings (46.7 percent)

Romijn and Albaladejo (2000?) find that external interaction with clients, suppliers and competitors shows little correlation with their measure of innovative capability, an index of the number and importance of innovations. The only interaction that appears to matter is that with training institutions and public R&D institutions.

The role of outside intervention and support

There is by now considerable experience with approaches and techniques to strengthen innovative capacity and performance through cluster-based approaches. Some of that experience has been written up, for example, Ceglie and Dini (1999) and Clara et al. (2000) for UNIDO, Altenburg and Meyer-Stamer (1999), or the special issue of World Development on industrial clusters in developing countries edited by Schmitz and Nadvi (1999). Ernst and Winkler (2003) suggest five major principles for cluster-oriented support. First, the emphasis needs to be on fostering innovative capacity, which does not preclude championing a particular innovation, such as branding or standards compliance, which is often the best way to get a group process moving, and to demonstrate the value of cooperation. An example for such an innovation is branding for a group of small producers to position them more strategically in niche markets. For Haitian coffee growers, a USAID-sponsored project introduced a premium brand, "Haitian Bleu." The initiative responded to global market trends that favor of upscale and branded coffee consumption.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

The program created a common logo, shown at left, and established consistent quality standards. The brand is owned by a federation of 37 associations of small producers, representing some 25,000 members. Benefiting from the brand value hinges on compliance with the quality standards.

Second, cluster support needs to pay close attention to governance structures and procedures, the way it organizes itself and the rules for transactions within the cluster. Kaplinsky and Morris (2003) address these aspects in some detail. Governance structures within clusters may seek to compensate for weaknesses in the institutional environment, creating mechanisms to ensure closure and compliance with group standards. Care is advisable, however, to avoid having these mechanisms stifle initiatives to transcend the group, to "graduate" from the microenterprise status.

Third, certain "anchor links" can strengthen cluster performance, as discussed further below. Fourth, and perhaps most important, outside support can at best guide the process of strengthening clusters and lowering transaction costs. It should never drive the process. Finally, given the emphasis on the ability to sustain productivity

growth, should the cluster become a business organization or association? The answer depends very much on the circumstances. A more comprehensive list, with inspired alliteration, is the "eightfold-C" that Romijn (1998) has proposed, adding five Cs to the "triple-C approach" to industrial policy introduced by Humphrey and Schmitz (1996).

Table 2: Attributes for successful support to MSE development

Attributes relating to project objectives / focus	Attributes relating to mode of implementation
<i>Customer-focus:</i> Projects designed around client needs rather than driven by supply capacity of assistance institutions	<i>Collectiveness:</i> Beneficiaries are clustered groups of SE rather than individual enterprises
<i>Capability-focus:</i> Technological learning rather than one-off improvements in hardware seen to be required for sustaining SE competitiveness	<i>Concentration:</i> Focused assistance delivery through more selective targeting of beneficiaries and indirect targeting via 'nodal actors' in the supply chain.
<i>Context:</i> Emphasis on creating an information-rich environment for SE	<i>Coordination:</i> Streamlining of assistance delivery by avoiding duplication and striving for complementarity between different projects and programs
<i>Complementarity:</i> Project aims and focus must fit in with macroeconomic structure and level of economic development	<i>'Carrot-and-stick' approach:</i> Design of effective incentive structure aimed at project sustainability, making use of, rather than replacing, market forces

Source: Romijn (1998), p. 21

Changing production structures create new opportunities and threats. For microenterprises in the manufacturing sector, at least, global trends in value chain management create both opportunities and threats in terms of innovation and growth. Advances in logistics and communications have facilitated the creation of decentralized systems of industrial organization. Lean and flexible production techniques have led to an increased reliance on inter-firm networking and subcontracting. As a result, microenterprises have gained greater importance in the manufacturing economies in OECD countries. In the UK, for example, the number of manufacturing establishments with up to 10 employees has increased from 35,000 in

the 1960s to over 100,000 by 1985 (Bannock and Peacock, 1989). Their contribution to manufacturing output increased from 19 percent in the 1960s to 32 percent by 1990 (Storey, 1994).

Obviously, these patterns per se do not necessarily translate to developing country environments, but they do suggest growing opportunities for microenterprises anywhere. MSEs in developing countries are increasingly able to link into global value chains and to reach specialty markets that would have been inaccessible a few years ago. The advances in logistics and communications, together with the reduction in trade barriers, facilitate the creation of market segments where producers from a particular region, say, can establish unique competencies. Market intermediaries are showing greater flexibility. As a result of these trends, microenterprises face new options of linking into global value chains.

At the same time, a competing trend has been increased concentration in value chains for "commoditized" markets. Major buyers and retailers—the transnational companies (TNCs)—dominate global value chains. They set standards for quality, reliability and timeliness for production, and may provide assistance to producers to meet these standards. In some respects, these relationships have substituted trade for foreign direct investment. Global producers became global buyers and coordinators, or "governors" (Kaplinsky and Readman, 2001). However, as a rule these value chain linkages tend to be loose, since many suppliers lack any particular competencies and buyers can easily switch to another group. In commoditized value chains, producers typically find themselves at the lower right-hand tail of the competitiveness curve in Figure 1 on page 2.

Raphael Kaplinsky and his colleagues at the Institute of Development Studies at the University of Sussex and elsewhere have done extensive work on the role developing-country MSEs in global value chains. One of their principal points is that it is no longer a question of whether to be part of global value chains, but *how* to participate. A recent UNIDO report (Kaplinsky and Readman, 2001) offers an excellent overview of the issues, trends, opportunities and threats. The report (and related work) stresses the need for increasing the capacity for continuous process, product, functional and chain upgrading, that is, innovative capacity at par with or above that of competitors. The challenge is to move up and to the left on the competitiveness curve. Building and exercising such capacity demands a combination of the right policy environment, carefully targeted support, and cooperation among producers.

Kaplinsky and Readman (2001) conclude:

Experience from many countries, including developing countries, shows that SMEs can indeed participate effectively but almost always this requires that they cooperate to achieve collective efficiency. This cooperation may either be horizontal (for example, exporting as a network of firms), or vertical (for example, exporting through incorporation in global value chains).

Transaction costs and graduation

Structural weaknesses affect microenterprises disproportionately. In interventions to improve the performance of clusters that include MSEs, an overarching theme is the critical role of effective interaction between strengthening the enabling environment—the microeconomic foundations of development—and fostering innovative performance at the level of the firm and cluster. A supportive business environment is critical for sustained productivity growth, because it encourages and rewards efforts to restructure continuously and adapt to market trends and dynamics.

Unreliable enforcement of contracts, excessive regulatory and administrative requirements, limited access to finance, and inadequate infrastructure services all impose disproportionately high transaction costs on micro and small enterprises for doing business generally, and for innovative activity in particular. While there have been few studies that focus on the relationship between the business environment and innovation per se, the findings of broader assessments of the effects of structural and policy weaknesses on MSEs apply fully to the issues of innovation and productivity growth. For example, Beck et al. (2002) examined the impact of financial, legal and corruption issues on the growth of firms. They found that the smallest firms are consistently most adversely affected by all three constraints.

Blocking growth and graduation?

A number of studies have shown that microenterprises and small businesses will develop their own coping mechanisms to offset weaknesses in the business environment, in particular the inability to enforce contracts, or the disproportionately high cost of doing business in the formal sector. Being small enables them to “stay under the radar,” which translates into a real disincentive to pursue growth. One commonly accepted argument, primarily associated with de Soto (1989), maintains that the transaction costs associated with doing business in the formal sector act as a barrier to graduation for enterprises in the informal sector. Microenterprises deliberately stay small to escape the attention of the tax and regulatory authorities. Weaknesses in the institutional environment thus are likely to hamper routine graduation from microenterprise status for those with innovative capacity.

Several studies, such as UNCTAD (2001), have addressed the problem of the “missing middle,” the absence of a strong small and medium-sized enterprise sector, in developing countries. These studies note a dual structure of the enterprise sector, with “a few large modern capital-intensive, resource-based, import-dependent and assembly-oriented enterprises” (UNCTAD, 2001, p. 2) and the rest of the sector comprising primarily micro and small enterprises. The UNCTAD study blames misguided industrialization policies that favor “premature” movements of capital into large-scale production rather than promoting more rapid growth for enterprises at the low end of

the firm size distribution. In addition, repressive legal and regulatory regimes combine with well-meaning efforts to support medium-sized businesses through protectionist measures to hamper the emergence of a dynamic small/medium-sized enterprise sector.

The evidence for the persistence of gap in the middle of the firm size distribution appears to be at least in part qualitative. The new dataset for regarding small and informal enterprises (Ayyagari et al., 2003) suggests that medium-sized enterprises do account for a significant portion of total employment in low-income countries. As new data are becoming available, key issues can be examined in a more robust manner.

Another recent empirical study (Erickson, 2002) looks at the impact of institutional factors on small enterprise growth in the formal vs. informal sector. His particular concern is the hypothesis associated with de Soto (1989) that high transaction costs of graduation into the formal sector in effect keep small enterprises from innovating for growth. Constructing a simple general equilibrium model of the informal sector and testing its empirical implication with cross-country data, he finds that the model fails to predict actual patterns of firm-size distribution.

Under the assumption that most firms above the 10-worker threshold participate wholly or partly in the formal sector, documented entry rates for the population of plants with at least 10 workers provide some rough idea of the graduation rates from the informal to the formal sector. Using these measures, Roberts and Tybout (1996) conclude that there "appears to be more job and plant turnover in these developing countries than others have found in the United States and Canada." (Tybout, 1998, p. 20) Similarly, Liedholm and Mead (1995) find that turnover rates among micro and small enterprises are very high. Tybout (1998, p. 22-23) concludes:

The finding that some micro enterprises make their way up the size distribution is consistent with Levenson and Maloney's (1997) vision of the informal sector. Rather than a residual pool created by workers rationed out of formal jobs, they see it as a seedbed for formal sector firms, with the most efficient entrepreneurs voluntarily choosing to submit to taxation and regulation in order to access the services they need for expansion ...

Further work is needed to validate such a benevolent view of the potential of the microenterprise sector. However, the evidence is persuasive that there is considerable competitiveness potential in that sector.

To sum up

MSEs can and do contribute effectively to overall growth, given the right conditions and incentives. Small size per se is not a barrier to competitive performance. Development policies that view microenterprise activity primarily through a poverty reduction lens may fail to leverage the growth and competitiveness potential of

that sector. As we are learning what support mechanisms and policies help shrink the "missing middle," more focused interventions become possible.

Taken together the findings from the four sections of this review suggest four major points that can guide the design and implementation of competitiveness interventions that target the microenterprise sector:

- (1) Under the right circumstances, and with the right support, small manufacturing firms that with 2-9 employees can successfully pursue innovation and position themselves competitively. There are some indications that the rate at which the microenterprise sector in developing countries spawns new entrants into the small (at least 10 employees) enterprise category is as high as or higher than in OCED countries. When key constraints to microenterprise growth, such as finance, are resolved, there is greater potential for these enterprises to contribute to growth and competitiveness.
- (2) Innovation is increasingly a product of network or relational learning, through interaction with others in the respective cluster—complementors (suppliers, customers) as well as competitors. All enterprises are part of some cluster, and often more than one, and economic transactions and information flows in the cluster shape innovation and competitive performance. Collaboration among small competitors opens up new technology and management options, and may offset any advantages that larger firms derive from economies of scale (although there is little evidence for potential gains from unexploited scale economies).
- (3) New technologies are affecting transaction costs in value chains, changing criteria for the "make-or-buy" decision, combining increased centralization for commoditized production with easier access to niche markets for differentiated products. Global producers are becoming global buyers and coordinators, working with groups of small producers able to meet their standards. At the same time, advances in communications and logistics facilitate increased market segmentation. These trends offer new opportunities for innovation for micro and small enterprises, but also imply threats to longer-term growth prospects if innovation is stifled. At the same time, microenterprises focusing on local markets where they enjoy some level of protection (because of size and location) are likely to face increased competition, as markets open up and access costs decline.
- (4) Micro and small enterprises suffer disproportionately from a flawed enabling environment. While the evidence on sector dynamics, such as "graduation," is mixed, high transaction costs imposed by the typical developing-country environment are more easily countered or absorbed by larger firms. Continuing

structural reform to lower transaction costs is therefore critical to boosting innovative capacity and productivity growth in the microenterprise sector, and leverage its potential. In fact, focusing on the impacts of structural on microenterprises is likely to yield greater benefits.

These lessons have direct implications for the design and implementation of efforts aimed at strengthening competitiveness. Microenterprises need to be part of such efforts. Among the notions that guide interventions are three points:

- Alleviating resource constraints to microenterprise (productivity) growth—access to finance and knowledge—is likely to have a direct impact on overall productivity growth, and therefore competitiveness and trade capacity.
- Strengthening market and information linkages, both in terms of network closure and in terms of bridging “structural holes” will allow microenterprise producers to compete in global value chains—which increasingly engulf local markets as trade barriers and access costs are coming down.
- Focusing structural reforms in terms of their impacts on microenterprises is likely to yield high payoffs, since the transaction costs of institutional weaknesses fall disproportionately on this sector.

This review paper provides at best a cursory overview of some of the key lessons learned. There is a large volume of empirical as well as conceptual material, and a more thorough knowledge mining effort is likely to pay significant dividends.

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- Research on industrial clusters in developing countries is increasingly concerned with how their competitiveness evolves and changes over time. This article shows what analytical shifts are needed to unravel the technological underpinnings of clusters' longer-term competitiveness. Building upon an understanding of technological learning in large-scale firms, it stresses the need to focus on systems of knowledge accumulation, rather than just production systems. With this in mind, future research should investigate clusters' active capabilities for generating and diffusing knowledge, and their 'openness' to external sources of knowledge. A conceptual framework to guide investigation of these aspects of cluster knowledge-systems is presented.
- Altenburg, Tilman and Jörg Meyer-Stamer, "How to promote clusters: Policy experiences from Latin America", *World Development*, Vol.27, No.9, September 1999
- This paper differentiates between three different types of clusters when it comes to formulating cluster-oriented policies in Latin

⁶ Marina Krivoshlykova and Andrew Iappini prepared much of this bibliography, including annotations.

America. Survival clusters of micro- and small-scale enterprises owe their existence more to unfavorable macroeconomic conditions and less to entrepreneurial competence and dynamism. Their competitive potential is limited. Support measures should mainly aim at improving the conditions for survival since these clusters are important in creating employment opportunities. The impetus should be to break through the low skills/low investment vicious circle. More advanced and differentiated mass producers have been flourishing in the import-substitution era but are coming under an enormous pressure with the transition to open economies. In these clusters the main challenge is to create an environment that stimulates and supports learning, innovation, and constant upgrading. Clusters of transnational corporations are typically dominated by foreign firms not only at the final assembly stage but also in parts production. These clusters often are showcases of best-practice manufacturing; this can be used to stimulate the upgrading of domestic firms, notably by involving them in the supply-chain of transnationals.

Anand, Bharat N. and Tarun Khanna, "Do firms learn to create value? The case of alliances," *Strategic Management Journal*, 21 (3), 2000, pp. 295-315

Finds that the effects of learning on value creation are strongest for research joint ventures, and weakest for marketing joint ventures. These results are consistent with the view that learning effects are more important in situations characterized by greater contractual ambiguity.

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Audretsch, David B. and Maryann P. Feldman, "R&D spillovers and the geography of innovation and production," *American Economic Review*, 86 (3) 1996, pp. 630-640

Ayyagari, Meghana, Thorsten Beck and Asli Demirgüç-Kunt, "Small and medium enterprises across the globe: A new database," World Bank Policy Research Working Paper 3127, 2003

This paper describes a new cross-country database on the importance of Small and Medium Enterprises (SME). This database presents consistent and comparable information on the contribution of the SME sector to total employment and GDP across different countries. The dataset improves upon existing publicly available datasets on

several grounds. First, it extends coverage to a broader set of developing and industrial economies. Second, it provides information on the contribution of the SME sector using a uniform definition of small and medium enterprises across different countries, allowing for consistent cross-country comparisons. Third, while it follows the traditional definition of SME sector as being part of the formal sector, the new database also includes size of the SME sector relative to the informal sector. The dataset reveals a significant variation in the size and economic activity of the SME sector across income groups. Countries with a higher level of GDP per capita have larger SME sectors in terms of their contribution to total employment and GDP. However, the overall contribution of small firms, formal and informal, remain about the same across income groups. As income increases, the share of the informal sector decreases and that of the formal SME sector increases.

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Bannock, G. and A. Peacock, *Governments and small business*. London: Paul Chapman, 1989

Batra, Geeta and Syed Mahmood, "Direct support to private firms: Evidence on effectiveness," World Bank, 2003

Governments use a variety of instruments to provide direct support to private enterprises. How effective have these direct support schemes been? This paper attempts to provide some answers to this question by surveying the available literature on the effectiveness of direct support interventions. The evidence indicates that active intervention does not work unless the basic environment for private sector development is sound. Public policy thus needs to focus on creating an enabling environment, key elements of which include a sound legal and judicial system which supports low-cost contract enforcement, good infrastructure, a policy playing field which is level in terms of ease of registration, taxes and investment incentives for all enterprises—large and small, domestic and foreign.

Baumol, William J., *The free-market innovation machine. Analyzing the growth miracle of capitalism*. Princeton: Princeton University Press, 2002.

Baumol sees the growth process as a compound of systematic innovation activity within the firm, an "arms race" in which there is constant pressure to innovate in terms of new products and processes. While firms use innovation as a prime competitive weapon, they seek to minimize their risk innovation, which is costly and can be made obsolete by rival innovation. So firms share risk (and rewards) through the sale of technology licenses and participation in technology-sharing compacts that pay huge dividends to the economy as a whole, making innovation a *routine feature* of economic life.

Beck, Thorsten, Asli Demirgüç-Kunt and Maksimovic Vojislav, "Financial and legal constraints to firm growth: Does size matter?" World Bank, 2002

Using a unique firm-level survey data base covering 54 countries, this paper investigates whether different financial, legal and corruption issues firms report as constraints actually affect their growth rates. The results show that the extent to which these factors constrain a firm's growth depends very much on its size and that it is consistently the smallest firms that are most adversely affected by all three constraints. Firm growth is more affected by reported constraints in countries with underdeveloped financial and legal systems and higher corruption.

Berry, Albert and Jose Escandon, "Colombia's small and medium-sized exporters and their support systems," World Bank Policy Research Paper, 1994

This study evaluates the role and potential of dynamic small and medium enterprises in Colombia's development. It addresses the micro-level policy in Colombia relevant to SME export potential. Particular attention is directed to the areas of marketing, technological, and financial support systems.

Best, M., *The new competition*. Cambridge: Harvard University Press, 1990

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Burt, R.S., "The social capital of structural holes," in Guillén, M.F., R. Collins, P. England and M. Meyer, eds., *New directions in economic sociology*, Chapter 7; New York, 2001

This study is a synopsis of the current work and knowledge of structural holes. Themes focus on evidence of rewards and achievements associated with brokerage, evidence on creativity and learning associated with brokerage, and evidence on the process of bridging structural holes. Conclusions from this study can be

summarized as: for individuals and groups, networks that span structural holes are associated with creativity and learning, adaptive implementation, more positive evaluations, more successful teams, early promotion and higher compensation.

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Callan, Bénédicte and Jean Guinet, *Enhancing the competitiveness of SMEs through innovation*, OECD background report, 2000

This paper identifies the challenges and opportunities that globalization raises for SMEs as they are faced with pressures to reduce production costs, increase productivity, and become more knowledge intensive. It discusses what is known about how different types of SMEs innovate, and identifies the principal strategies SMEs can pursue to enhance their competitiveness in global markets

Ceglie, Giovanna and Marco Dini, *SME cluster and network development in developing countries: The experience of UNIDO*, Vienna: UNIDO, 1999

The background and experience of the UNIDO technical assistance program for SME networking is described and evaluated in this paper. The lessons learned through the implementation of the projects are summarized. They include the need for a demand-led approach, the characteristics of the SME networks promoted by UNIDO, the need to invest in human resource development, some considerations on funding strategies and sustainability issues.

Chowdhury, Shyamal and Susanna Wolf, "Use of ICTs and economic performance of small and medium enterprises in East Africa," Bonn University, Center for Development Research, 2002 (?)

Clara, Michele, Fabio Russo and Mukesh Gulati, "Cluster development and BDS promotion: UNIDO's experience in India," paper presented at the International Conference on Business Services for Small Enterprises in Asia: Developing Markets and Measuring Performance. Hanoi, April 2000

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Coombs, R., A. Richards, P. Saviotti and V. Walsh, *Technical collaboration: The dynamics of cooperation in industrial innovation*. Cheltenham: Edgar Elgar, 1996.

Cooper, Charles, "Relevance of innovation studies to developing countries," in: Cooper, Charles (ed.), *Technology and innovation in the international economy*. Aldershot/Brookfield/Tokyo: Edward Elgar/UNU Press, 1994

This article looks at lessons learned from innovation studies, stressing the importance of policies to build up relevant capabilities for *imitation* in industries in developing countries. Cooper sees access to "codified" knowledge contained in license agreements as not sufficient for a firm to imitate successfully. The transfer of "tacit" knowledge about the new product and/or process is also needed. Accumulation of technological capability is an essential dynamic requirement for most strategies in innovative industries, but knowledge of the underlying *learning* process is still imperfect, especially in developing countries. Learning (including "learning-by-doing") is not automatic but requires an explicit allocation of resources.

Cosh, A., A. Hughes and E. Wood, "Innovation in UK SMEs: Causes and consequences for firm failure and acquisition," in: Acs, Z.J. and B. Carlsson (eds.), *Entrepreneurship, SMEs and the macro economy*. Cambridge: Cambridge University Press, 1998

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Dickson, K.E. and A. Hadjimanolis, "Innovation and networking amongst small manufacturing firms in Cyprus," *International Journal of Entrepreneurial Behaviour and Research*, 4 (1), 1998, pp. 5-17

A study of innovative behavior and cooperation for a small sample (10) of firms. The study concludes that close relationships with the firms' partners (suppliers, customers, etc.) are important channels for acquiring resources and information and in conducting business for mutual benefit. These relationships take time, effort and resources to be developed and maintained. Whether the initiative comes from firms themselves or government or training consultancies, the importance and benefits of establishing better

local networks through cooperation has been made quite apparent by this research.

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Engerman, Stanley L. and Kenneth L. Sokoloff, "Factor endowments, institutions, and differential paths of growth among New World economies: A view from economic historians of the United States," NBER Historical Working Paper 066. Published in Stephen Haber, ed., *How Latin America fell behind*, Stanford: Stanford University Press, 1997

This paper explores why the US and Canada have been more successful over time than other New World economies. It highlights the relevance of differences in the degree of inequality in wealth, human capital, and political power in accounting for the variation in the records of growth, and suggests that the roots of inequality lay in differences in the initial factor endowments of the respective colonies.

Erickson, Lennart, "Informality, firm size and economic growth: Testing the de Soto hypothesis," Brown University, October, 2002

Formalizing the concept developed by de Soto (1989), this paper constructs a general equilibrium model of the informal sector. The empirical implications of the model are tested using cross-country data. The data do not conform to the model's predictions, indicating that the popular conception of the nature of informal sectors should be re-examined.

Ernst, Ulrich F.W., "The pursuit of country competitiveness: Panacea or 'dangerous obsession,'" *Developing Alternatives*, 9 (1), 2003, pp. 4-10

Ernst, Ulrich F.W. and James Packard Winkler, "Learning to innovate: Lessons for micro and small enterprise cluster support," paper presented at the VI Inter-American Forum on Microenterprise, September 2003

Escorsa, Pere, Ramon Maspons and Matt Staton, "SMEs, technology, competitiveness and employment," WP (RASTEI) 00-10, Spain, 2000

This short document is the RASTEI project literature review of issues regarding SMEs, technology, competitiveness and employment in Spain. The objective of the paper is to lay the foundation for later phases of RASTEI by identifying some of the key issues relating to SMEs in Spanish Objective One regions.

Fairbanks, Michael and Stace Lindsay, *Plowing the sea: Nurturing the hidden sources of growth in the developing world*. Boston: Harvard Business School Press, 1997

The authors address the issue of competitiveness in the developing world and advance ways to build and sustain macro, long-term competitive advantage. The study identifies seven opportunities for leveraging a country's comparative advantage, among them improving understanding of customers, reasoning and overcoming defensiveness, and avoiding paternalism. The book provides a new approach for the study of development strategies in the Andean countries and throughout the developing world.

Fischer, F.M. and P. Temin, "Returns to scale in research and development: What does the Schumpeterian hypothesis imply?" *Journal of Political Economy*, 81, 1973, pp. 56-70

Fox, James W., "Report on Competitiveness Promotion In Colombia and El Salvador," Louis Berger Group, Inc., 2003

This report is an analysis of the existing information base on the concept of competitiveness, as microeconomic tool for the promotion of productivity growth. The findings reveal that competitiveness will not yield rapid results and that no exiting donor programs have been usefully employed in a competitiveness effort.

Nevertheless, Fox listed several benign actions that donors may take to encourage competitiveness. The study was commissioned by the Inter-American Development Bank.

Freeman, Christopher, "The economics of technical change: Critical survey," *Cambridge Journal of Economics*, 18, 1994, pp. 463-514

Freeman, Christopher, "Networks of innovators: A synthesis of research issues," *Research Policy*, 20 (5), 1991, pp. 499-514

Freeman, Christopher, *The economics of industrial innovation*. London: Frances Pinter, 1982

Freeman, Christopher and Hagedoorn, J., "Catching up or falling behind: Patterns in international interfirm technology partnering," *World Development*, 22 (5), 1994, pp. 771-780

Galbraith, John Kenneth, *American capitalism. The concept of countervailing power*. Boston: Houghton Mifflin, 1952

Garcia, Rosanna and Roger Calantone, "A critical look at technological innovation typology and innovativeness terminology: A literature review," *The Journal of Product Innovation Management*, 19, 2002, pp. 110-132

The paper identifies key dimensions in defining an innovation typology. Using a classification by the associated discontinuities in terms of marketing and technology and both the macro (world, market, industry) and micro (firm, customer) levels, the authors propose a classification scheme that separates radical and incremental innovations, and defines an intermediate category, the "really new" innovation.

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Horowitz, Ira, "Research inclinations of a Cournot oligopolist," *Review of Economic Studies*, 1963, pp. 128-130

Humphrey, J and H. Schmitz, "Trust and inter-firm relations in developing and transition economies," *Journal of Development Studies*, Vol. 34, No. 4 pp. 32-61. 1998.

The role of trust in facilitating economic growth has been highlighted in previous contributions to this journal. In order to take this debate forward, this article argues (1) that more attention needs to be given to the relationship between sanctions and trust, and (2) that it is worth distinguishing between the minimal trust for making markets effective and the extended trust required for deeper kinds of inter-firm co-operation to work. The article goes on to ask why minimal trust is lacking and so hard to construct in the republics of the former Soviet Union. It then examines how extended trust grows or can be made to grow in industrial supply chains and clusters in developing countries.

Humphrey, J. and H. Schmitz, "The triple C approach to local industrial policy," *World Development*, 24 (12), 1996; pp. 1859-1877

Hyvärinen, L., "Innovativeness and its indicators in small and medium-sized industrial enterprises," *International Small Business Journal*, 9 (1), 1990, pp. 64-79

ILO, *Macroeconomic policy and small scale industry: Lessons from Asia and Africa*. New Delhi: ILO, 1996

Jarillo, J., "On strategic networks," *Strategic Management Journal*, 9, 1988, pp. 31-41

Kamien, Morton I., and Nancy L. Schwartz, *Market structure and innovation*. Cambridge: Cambridge University Press, 1982

Kathuria, Sanjay, "Market structure and innovation: A study of empirical studies of Schumpeterian hypotheses for developed

countries and India," *Economic and Political Weekly*, 24, 1989, pp. M113-25

Katrak, Homi, "Imported technology, enterprise size and R&D in a newly industrializing country: The experience of Indian enterprises," *Journal of Development Economics*. 31, 1989

Kim, Y., K. Song and J. Lee, "Determinants of technological innovation in the small firm of Korea," *R&D Management*, 23 (3), 1993, pp. 215-226

Kaplinsky, Raphael and Michael Morris, "Governance matters in value chains," *Developing Alternatives*, 9 (1), 2003, pp. 11-18

Kaplinsky, Raphael and Jeff Readman, *Integrating SMEs in global value chains: Toward partnership for development*. Vienna: UNIDO, 2001

This study surveys the changing role of the private sector in economic and industrial development, reviews how the formation of the TNC-SME linkages and the insertion of SMEs into global value chains can contribute to SME development, and assesses the measures that national and multinational bodies such as UNIDO can take to promote such development in partnership with the business community. The authors develop new "mental models" for examining the role of micro and small enterprises in global value chains.

Kennedy, Loraine, "Cooperating for survival: Tannery pollution and joint action in the Palar Valley (South India)," *World Development*, Vol.27, No.9, September 1999

In 1995 the Supreme Court of India ordered the closure of hundreds of tanneries in Tamil Nadu for failing to treat their effluents. With their survival at stake, local producers opted overwhelmingly for a collective solution, and took immediate steps to form central treatment plants. This article shows how cooperation, facilitated by community ties and shared local identities, enabled the clusters to meet the 'pollution crisis'. It examines difficulties that arise from collective action, notably monitoring and compliance, and explores public-private interaction in the pursuit of environmental goals. Sustaining cooperation and future prospects of joint action are also discussed.

Klein, Michael, "Ways out of poverty: Diffusing best practices and creating capabilities," World Bank, 2003

Fundamentally, poverty reduction is about bringing growth processes to poor areas. Because poor areas can benefit from technical and organizational innovations made elsewhere in the world, it is possible today to create productive jobs faster and in greater quantity than ever before. Selection mechanism, which allows for policy experiments and selects successful ones, is valuable for national, provincial, and local governments. Thus competition among jurisdictions and firms is an integral part of dynamic social systems that hold promise for creating wealth and ending poverty.

Kleinknecht, A.H., and J.O.N. Reijnen, "More evidence on the undercounting of small firm R&D," *Research Policy*, 20, 1991, pp. 579-587

Knorrinda, Peter, "Agra: An Old Cluster Facing the New Competition," *World Development*, Vol.27, No.9, September 1999

This paper examines how producers in a traditional Indian cluster have responded to major recent changes in internal and external markets. It shows that in a heterogeneous cluster like Agra the answer differs by market channel. In Agra, the challenges of the 1990s have altered both the cluster composition and the extent of cooperation in inter-firm relationships. The paper investigates how specific groups of producers in particular market channels have prospered while many other producers have closed down or face ever more desperate conditions in the market channel of last resort.

Kumar, Nagesh, and Mohammed Saqib, "Firm size, opportunities for adaptation and in-house R&D activities in developing countries: The case of Indian manufacturing," *Research Policy*, 25 (5), 1996, pp. 712-722

On the basis of a sample of 291 Indian manufacturing firms, this paper analyzes the determinants of probability of undertaking R&D activity and intensity of R&D expenditures. The empirical findings suggest that the probability of undertaking R&D increases with the firm size only up to a certain level, while R&D intensity increases with it linearly. Competitive pressures, export-orientation and vertical integration influence the firms' inclination to undertake R&D favorably.

Kumar, Nagesh and N.S. Siddharthan, "Technology, firm size and export behavior in developing countries: The case of Indian enterprises," UNU/INTECH Working Paper No. 9, September 1993

Looking at 13 Indian manufacturing industries this paper analyses the inter-firm variation in export behavior. It argues that the technology factor could be important for explaining the export performance of Indian enterprises in the case of low and medium technology industries. The paper examines in particular the role of firm size, in-house innovation and technology imports.

Kumar, Nagesh, "Technology imports and local research and development in Indian manufacturing," *The Developing Economies*, 25, 1987, pp. 220-233.

Lall, Sanjaya, "Strengthening SMEs for international competitiveness," University of Oxford, March 2000

This paper deals with the competitive problems facing small and medium sized enterprises (SMEs) in developing countries. It concentrates on the manufacturing sector, where the competitive threat is felt most directly and where there is enormous export potential. The author identifies three sets of competitive problems that SME tend to face: disadvantages of small size per se, segmented factor markets and policies and institutions that are

biased against SMEs. Drawing on the experience of the advanced and newly industrializing countries and upon a study of SMEs in Europe and East Asia, the study then looks at the support systems for SMEs in developing countries, compared to developed and newly industrializing ones.

Lall, Sanjaya, *Promoting competitiveness in developing countries: Lessons from East Asia*. London: Commonwealth Secretariat Economic Paper, 1999

Lall, Sanjaya, (ed.), *The technological response to import liberalization in sub-Saharan Africa*. London: Macmillan, 1999

Lange, Julian, "Governor Craig Benson's entrepreneur's workshop," PowerPoint presentation, 2003

Lee, C.J. "The industrial networks of Taiwan's small and medium sized enterprises," *Journal of Industry Studies*, 2 (2), 1995; pp. 75-88

Levenson, Alec and William Maloney, "The informal sector, firm dynamics and institutional participation," University of Illinois, February 1977

Levi, Margaret, "When good defenses make good neighbors: A transaction cost approach to trust, the absence of trust and distrust," in: Ménard, Claude (ed.), *Institutions, contracts and organizations. Perspectives from new institutional economics*. Cheltenham/Northampton: Edgar Elgar, 2000; pp. 137-157

Levy, B., 1993, "Obstacles to developing indigenous small and medium enterprises: An empirical assessment," *World Bank Economic Review*, 7 (1), 1993

Liedholm, Carl and Donald Mead, *GEMINI Action Research Program I, Final Report: The dynamic role of micro and small enterprises in the development process*. Bethesda: DAI/GEMINI, 1995

Mansfield, Edwin, *Industrial research and technological innovation: An econometric analysis*. New York: Norton, 1968

Mansfield, Edwin, J. Rapoport, J. Schnee, S. Wagner and M. Hamburger, *Research and innovation in the modern corporation*. New York: Norton, 1971

McCormick, Dorothy, "African enterprise clusters and industrialization: Theory and reality," *World Development*, Vol.27, No.9, September 1999

Using six case studies from Africa, this paper examines the theoretical argument that geographic and sectoral clustering enables enterprises to overcome constraints to growth and development. Findings were both theoretical and practical. Theoretically, the study underscored the strength of the collective efficiency framework, but found that certain anomalies could only be explained by other contextual variables. Grouping the six case studies revealed important differences among them, and showed that each group plays its own part in the industrialization process. 'Groundwork' clusters prepare the way; 'industrializing' clusters

begin the process of specialization, differentiation, and technological development; and 'complex industrial' clusters produce competitively for wider markets. The paper concludes with practical implications for African governments, donors, and the business community.

McDermott, Gerald A., "Argentine SMEs and their support programs: The barriers and possibilities for local learning," Universidad Austral, Escuela de Dirección y Negocios (DT 09/2002), Noviembre 2002

Meyanathan, S. (ed.), *Industrial structures and the development of small and medium enterprise linkages: Examples from East Asia*, Washington: World Bank, 1994

Mueller, Dennis C., "The firm decision process: An econometric investigation," *Quarterly Journal of Economics*, 81, February 1967, pp. 58-87

Mustar, Philippe, *High-growth SMEs and employment*. Paris: Organisation for Economic Co-operation and Development (OECD), 2002

The OECD Working Party on SMEs has carried out this research project on the role of high growth SMEs and employment. The study looks at the relationship between firm growth and job creation and the characteristics of high-growth firms and at the conditions, including government policies, which may be conducive to the development and success of these firms.

Mytelka, Lynn and Fulvia Farinelli, "Local clusters, innovation systems and sustained competitiveness," UNU/INTECH Discussion Papers, September 2000

Exploring the sustainability of a process of continuous innovation in clusters based on traditional industries, this paper develops a typology that distinguishes among clusters in terms of their potential for dynamic change. The author identifies and explores three types of clusters: informal, organized and innovative clusters. The study provides a brief overview of cases in the developing world in which informal clusters have become more organized and have upgraded production without however sustaining a process of innovation. The paper examines the evolution of production and exports in clusters in Denmark and Italy and identifies a number of factors that have contributed to sustained innovation in these two clusters.

Nadvi, K., "The cutting edge: Collective efficiency and international competitiveness in Pakistan," *Oxford Development Studies*, 27 (1), 1999, pp. 81-108

Nadvi, Khalid, "The response of Pakistan's surgical instrument cluster to global quality pressures", *World Development*, 27 (9), September 1999

One of Pakistan's rare examples of consistent export success has been the Sialkot stainless steel surgical instrument cluster. This cluster, consisting mainly of small and medium enterprises (SMEs), has as its main markets the United States and Western Europe. In

recent years, access to these markets has become contingent on meeting international quality assurance standards. The hypothesis explored in this paper is that meeting such standards requires greater local co-operation, both amongst producers as well as between producers and their suppliers and subcontractors. The study draws on quantitative and qualitative data to examine how inter-firm ties, both vertical and horizontal, have changed. The evidence suggests that joint action has increased, but that there remain significant areas of collective failure. Thus, the quality assurance pressures mark a possible turning point for the cluster, raising questions as to whether local sources of competitiveness, captured in the collective efficiency concept, can continue to provide the basis for export success. It also leads directly to an evaluation of the cluster's growth trajectory.

Nadvi, K. and H. Schmitz, *Industrial clusters in less developed countries: Review of experience and research agenda*. Brighton: Institute of Development Studies, Discussion Paper 339, 1994

Neely, Andy and Jasper Hii, "The innovative capacity of firms," Report commissioned by the Government Office for the East of England, Centre for Business Performance, Judge Institute of Management Studies, University of Cambridge, February 1999.

The paper argues that the management of four interconnected dimensions underpins the innovative capacity of firms: culture, resources, competencies and networking. Firms make use of various networking mechanisms to import new ideas and knowledge from the marketplace and the business environment. The responses to a survey showed the following five information sources for innovation:

1. Within company internally (70.0 percent)
2. Supplier of materials and components (61.3 percent)
3. Clients or customers (50.0 percent)
4. Suppliers of equipment (50.0 percent)
5. Professional conferences and meetings (46.7 percent)

Nelson, Richard R., *The sources of economic growth*. Cambridge: Harvard University Press, 1996.

Nelson, Richard R. and Sidney Winter, *An evolutionary theory of economic change*. Cambridge: Cambridge University Press, 1982

Nooteboom, Bart, "Innovation and inter-firm linkages: Implications for policy," Groningen University and Netherlands Institute for Advanced Studies (NIAS), undated (2000?)

Nooteboom, Bart, "Trust as a governance device," in: Casson, M.C. and A. Godley (eds.), *Cultural factors in economic growth*. Berlin: Springer, 1999

Nooteboom, Bart, "Innovation and diffusion in small firms: Theory and evidence," *Small Business Economics*, 6, 1994, pp. 327-347

Nooteboom, Bart, "Trust, opportunism and governance: A process and control model," *Organization Studies*, 14 (3), 1993, pp. 443-451

Nooteboom, Bart, J. Berger and N.G. Noorderhaven, "Effects of trust and governance on relational risk," *Academy of Management Journal*, 40 (2), 1997, pp. 308-338

Nooteboom, Bart and R.W. Vossen, "Firm size and efficiency in R&D spending," in: van Witteloostuyn (ed.), *Market evolution: Competition and cooperation across markets and over time*. (Studies in Industrial Organization, Vol. 29) Deventer: Kluwer, 1995; pp. 69-86

Oyelaran-Oyeyinka, Banji, "Networks and linkages in African manufacturing cluster: A Nigerian case study," United Nations University, 2001

Employing survey data, this paper investigates the basis for long term sustainable development of industrial clusters in Lagos, Nigeria. This study suggests that non-economic factors exert a profound influence on evolving forms of industrial organization in late industrialization.

Pagano, Patrizio and Fabiano Schivardi, "Firm size distribution and growth," Bank of Italy, Research Department, October 2000

The authors find a positive and robust association between average firm size and productivity growth for a set of European countries. To explain this finding, they construct a test based on the differential effect of size structure on growth according to different indicators of R&D intensity. The results indicate that larger average size fosters productivity growth because it makes it possible to take advantage of increasing returns to scale associated with R&D.

Pavitt, K. et al., "The size distribution of innovating firms in the UK: 1945-1983," *Journal of Industrial Economics*, 35, 1987, pp. 297-316

Perry, M., "Clusters last stand, a comment," *Planning Practice and Research*, 14 (2), 1999, pp. 149-152

Piore, M. and C. Sabel, *The second industrial divide: Possibilities for prosperity*. New York: Basic Books, 1984

Porter Michael E., *The competitive advantage of nations*. New York: The Free Press, 1990

Pyke, F. and W. Sengenberger (eds.), *Industrial districts and local economic regeneration*. Geneva: International Institute for Labor Studies, ILO, 1992

Pyke, F., G. Becattini and W. Sengenberger (eds.), *Industrial districts and interfirm cooperation in Italy*. Geneva: International Institute for Labor Studies, ILO, 1990

Rabellotti, Roberta, "Recovery of a Mexican cluster: Devaluation bonanza or collective efficiency?" *World Development*, Vol.27, No.9, September 1999

Mexico, as many other developing countries in Latin America and elsewhere, has been moving in the 1980s towards a liberalized trade regime after a long period of import-substitution. This paper

analyzes the impact of trade liberalization on the cooperative behavior of shoe firms located in a cluster: Guadalajara. The empirical evidence shows that cooperation has increased. It also suggests that cooperation positively influences firms' performance and together with a favorable market environment contributes to the cluster's recovery. The study is based on the findings of fieldwork carried out in Guadalajara in 1996. Qualitative information was collected through in-depth interviews and quantified responses came from a questionnaire survey covering a sample of 63 shoe manufacturing enterprises.

Rabellotti, Roberta, *External economies and cooperation in industrial districts: A comparison of Italy and Mexico*. New York: St. Martin's Press, 1997

Régnier P., *Small and medium enterprises in distress: Thailand, the East Asian crisis and beyond*. London, Ashgate, 2000

Reynolds, Paul D., S. Michael Camp, William D. Bygrave, Erkkio Autio, and Michael Hay, *Global Entrepreneurship Monitor. 2001 summary report*. London Business School and Babson College, 2002.

A survey-based assessment of levels and patterns of entrepreneurial activity in 29 countries involved in the Global Entrepreneurship Monitor (GEM) program. The study found that on average just under 10 percent of the (working-age) population are engaged at any point in time in the process of creating and growing new businesses. The percentage ranges from a low of 5 percent of the adults in Belgium and Japan to about 18 percent in Mexico. The report distinguishes between opportunity and necessity entrepreneurship; on average, about 6.5 percent of the adult were opportunity entrepreneurs, and 2.5 percent necessity entrepreneurs, with higher proportions in developing countries. When countries highly dependent on international trade were excluded, there was a strong association between the incidence of necessity entrepreneurship and economic growth. The prevalence rate of opportunity entrepreneurship, however, shows no association with economic growth. The study concludes that "in developing countries necessity entrepreneurship may have a strong macro-economic function."

Roberts, Mark and James Tybout, *Industrial evolution in developing countries: Micro patterns of turnover, productivity and market structure*. New York: Oxford University Press, 1996

Rogers, Mark, "Networks, firm size and innovation: Evidence from Australian firms," Melbourne Institute of Applied Economic and Social Research, 2000

Using survey data on Australian firms this paper investigates the determinants of innovation. Various possible determinants are investigated, including market structure, export status, the use of networks, and training. Regression analysis is conducted separately for manufacturing and non-manufacturing firms and, within each sector, by firm size categories.

Romijn, Henny, "Technology support for small industries in developing countries: From 'supply-push' to 'eightfold-C'," Working Paper No. 21, Queen Elizabeth House, University of Oxford, October 1998

Romijn, Henny and Manuel Albaladejo, "Determinants of innovation capability in small UK firms: An empirical analysis," Working Paper No. 40, Queen Elizabeth House, University of Oxford, undated (2000?)

Rothwell, R., "Successful industrial innovation: Critical factors for the 1990s," *R&D Management*, 22 (3), 1992, pp. 221-239

Rothwell, R., "Small firms, innovation and industrial change," *Small Business Economics*, 1, 1989, pp. 51-61

Rothwell, R. and M. Dodgson, "Innovation and size of firm," in: Dodgson, M. and R. Rothwell (eds.), *The handbook of industrial innovation*. Aldershot: Edgar Elgar, 1994; pp. 310-324

Rothwell, R. and M. Dodgson, "SMEs: their role in industrial and economic change," *International Journal of Technology Management*, 1993, pp. 8-22

Saxenian, Anna Lee, *Regional advantage: Culture and competition in Silicon Valley and Route 128*. Cambridge: Harvard University Press, 1996

This text analyzes the qualities of competing regional clusters in the developed world. The author argues that it is not the culture of Silicon Valley, but rather the innovative institutions and networked relationships in Silicon Valley that explains the region's success. Saxenian argues that Silicon Valley's competitive advantage is the vast network of small firms that compose Silicon Valley and cross pollinate each other. The book compares the Silicon Valley to the route 128 area in Boston which is described as detrimentally hierarchical.

Scherer, F.M., *Innovation and growth. Schumpeterian perspectives*. Cambridge: MIT Press, 1984

Scherer, F.M., *Industrial market structure and economic performance*. Chicago: RandMcNally, 1970

Scherer, F.M., "Market structure and the employment of scientists and engineers," *American Economic Review*, 57, 1967, pp. 524-531

Scherer, F.M., "Firm size, market structure, opportunity, and the output of patented inventions," *American Economic Review*, 55, 1965, pp. 1097-1125

Schmitz, H., "Does local cooperation matter? Evidence from industrial clusters in South Asia and Latin America," *Oxford Economic Papers*, No.3, 2000, pp. 323-336

For most industrial enterprises in developing countries, the 1990s are in two respects different from previous decades: competition is more intensive and it is waged over a wider range of factors. While price continues to be important, quality, speed and flexibility matter more than before. Due to the twin forces of liberalization

and globalization most enterprises have little choice but to confront these pressures. This paper examines the responses of clusters of industrial enterprises in Latin America and South Asia. Schmitz, H., "Global competition and local cooperation: Success and failure in the Sinos Valley, Brazil," *World Development*, 27 (9), 1999

This article investigates whether enterprises in the export-oriented Sinos Valley (South of Brazil) have stepped up co-operation in response to intensified global competition in leather footwear. Using a combination of quantitative and qualitative methods, it shows a substantial increase in bilateral vertical co-operation, contributing to a major advance in raising product quality, speed of response and flexibility. In spite of these advances, the cluster has not been able to raise exports and profits have fallen. This seems related to the fact that upgrading was largely limited to the sphere of production. Upgrading in other areas such as marketing, design and image was attempted in an ambitious program of multilateral co-operation. The program failed for two reasons: some leading enterprises put their alliance with a major global buyer above co-operation with local manufacturers; and the state failed to mediate at critical moments between conflicting business associations and entrepreneurial alliances. The paper concludes with suggestions for future research on global competition and local upgrading.

Schmitz, H., "Responding to global competitive pressure: Local co-operation and upgrading in the Sinos Valley, Brazil," IDS Working Paper No. 82, University of Sussex, Institute of Development Studies, 1998.

Schmitz, H., "Collective efficiency: Growth path for small-scale industry," *Journal of Development Studies*, 31 (4), 1995, pp. 529-566

There is mounting evidence that clustering and networking help small firms to compete and grow. By working together, firms can gain the benefits of collective efficiency, enabling them to challenge larger competitors and break into national and global markets. Many of the most impressive examples - in Italy, Brazil, Pakistan, and elsewhere - have emerged largely spontaneously. But research suggests that governments can assist the process. The keys to success seem to be a customer-oriented focus, a collective approach, and a cumulative effort to ensure continuous, rather than one-off, improvements.

Schmitz, H., "On the clustering of small firms," *IDS Bulletin*, 23 (3), 1992

Schmitz, H. and K. Nadvi (eds.), *Industrial clusters in developing countries*. *World Development*, (Special issue) 27 (9), 1999

Schumpeter, Joseph A., *Capitalism, socialism and democracy*. New York: Harper, 1942

Schumpeter, Joseph A., *Business cycles*. New York: McGraw-Hill, 1939

Schumpeter, Joseph A., *Theorie der wirtschaftlichen Entwicklung*. Leipzig: Duncker & Humboldt, 1912

Seshagiri, Radha, "Institutional innovations to support micro, small and medium enterprises," World Bank, 2001

This paper presents examples of two types of commercially viable innovations that increase productivity and growth of SMEs in developing countries: business networks and clusters and venture capital to small enterprises through a combination of equity investments and technical assistance.

Shane, Scott, "Cultural influences on national differences in rates of innovation," *Journal of Business Venturing*, 8 (1), 1993, pp. 59-74

Shrieves, R.E., "Market structure and innovation: A new perspective," *Journal of Industrial Economics*, 26, 1978, pp. 329-347

Snodgrass, Donald and Tyler Biggs, *Industrialization and the small firm: Patterns and policies*. San Francisco: International Center for Economic Growth, 1996

This text approaches the complex problem of how to encourage job creation and business development in relation to small and medium enterprises in developing countries. One of the authors' main findings is that as countries develop average plant size in manufacturing rises and the importance of small firms declines sharply. The authors also conclude that most government policies aimed at supporting SME fail to accomplish SME growth and often create additional adversities for SMEs. The practice of governments "picking winners" is inadvisable in most developing countries.

Söderbom, Mans and Francis Teal, "Size and efficiency in African manufacturing firms: Evidence from firm-level panel data," University of Oxford, April 2003

Three dimensions of the performance of firms in Ghana's manufacturing sector are investigated in this paper: their technology and the importance of technical and allocative efficiency. Technical inefficiency is not lower in firms with foreign ownership or older firms and its dispersion across firms is similar to that found in other economies. Large firms face far higher relative labor costs than small firms.

Söderbom, Mans, "Firm size and human capital as determinants of productivity and earning," CSAE-UNIDO Working Paper No.5, 2000

This paper investigates the roles of firm size and human capital in determining both earnings and productivity using a panel data set of matched labor firm data.

Spath, B. (ed.), *Small firms and development in Latin America*. Geneva: ILO Publications, 1993

Storey, D.J., *Understanding the small business sector*. London: International Thomson Business Press, 1994

Subodh, Kandamuthan, "Market concentration, firm size and innovative activity: A firm-level economic analysis of selected Indian industries under economic liberalization," World Institute for Development Economics Research, Discussion Paper No. 2002/108, November 2002

This paper studies the relationship between firm size, market concentration and innovative capacity with reference to India's economic liberalization. Innovative capacity is conceptualized as a combination of in-house R&D and the import of technology after India's liberalization. The study analyzes the firm-specific, product-specific and industry-specific factors which affect the investment decision to undertake innovation and the intensity of the innovative activity.

Sverrisson, A., *Evolutionary technical change and flexible mechanisation: Entrepreneurship in Kenya and Zimbabwe*. Lund: Lund University Press, 1993

Swann, P., *New technologies and the firm: Innovation and competition*. London: Routledge, 1993

Teece, David J., "Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy," *Research Policy*, 15, 1986, pp. 285-305

Teece, David J., Gary Pisano and Amy Shuen, "Dynamic capabilities and strategic management," *Strategic Management Journal*, 18 (7), pp. 509-533

Tewari, Meenu, "Successful adjustment in Indian industry: The case of Ludhiana's knitwear cluster," *World Development*, Vol.27, No.9, September 1999

This paper examines the case of adjustment in a labor-intensive export industry (woolen knitwear) to understand how traditional sectors in developing regions cope with external crises and rise beyond them. India's woolen knitwear industry, concentrated in Ludhiana, recently survived two crises—the collapse of its largest export market (the former Soviet Union), and the simultaneous opening up of the domestic market to freer trade. After an unusually short downturn, the cluster not only recovered rapidly, but is increasingly diversifying into more demanding and competitive external markets. Four factors are key to explaining this surprisingly resilient recovery. First, the best performing firms had a strong and simultaneous presence in dynamic segments of the domestic market alongside exports. This generated key organizational learning, and built managerial and production capacities that helped firms adapt quickly to more demanding markets later. Second, an important feature of the learning relationship between first-time exporters and their foreign buyers was the small-scale nature of contracts and a "customization of fit" between the producer and the feedback-giving intermediary. Third, better performing firms paid equal if not greater attention to making organizational changes in their work practices than to

the purchase of new equipment. Fourth, the embedded nature of production networks, and the government's past programs to assist local firms have indirectly helped create a dynamic middle-tier of locally-rooted exporters who appear to be leading the cluster's transformation and modernization.

Tsekouras, George, and Theo Papaioannou, "Public support to learning networks in Europe: Critical needs and policy issues," CENTRIM, University of Brighton, 2001

This study prepared for the European Commission is a summation of case studies looking at various cluster examples throughout Europe. Conclusions or lessons learned from the experience of the whole is not explored in depth, however, the experience of each case study is presented in detail.

Tybout, James, "Manufacturing firms in developing countries: How well do they do and why?," August 1998

Drawing on plant and firm-level studies of manufacturers in developing countries the author of this paper assesses the argument that manufacturers in less developed countries perform poorly in several respects: (1) markets tolerate inefficient firms, so cross-firms productivity dispersion is high; (2) small groups of entrenched oligopolists exploit monopoly power in product markets; and (3) many small firms are unable or unwilling to grow, so important scale economies go unexploited. The author finds none of these to be systematically supported.

UNCTAD, *Growing micro and small businesses in LDCs. The "missing middle" in LDCs: why micro and small enterprises are not growing.* Geneva: UNCTAD, 2001. (UNCTAD/IT/TEB/5)

Utterback, James M., *Mastering the dynamics of innovation.* Boston: Harvard University Press, 1994

Utterback, James M., "The innovation process," *Science*, 183, 1974, pp. 658-662

Vinding, Anker Lund, "Firms and knowledge institutions. The innovation potential in low-tech sectors and small firms," Aalborg University, Denmark, Department of Business Studies-DRUID/IKE Group, 2001

The author argues that knowledge institutions are important for strengthening innovative capacity in firms. Much of the knowledge involved is noncodified and dependent on search and transfer mechanisms. In order to capture that knowledge for innovation, the search and transfer mechanisms depend on the strength of ties between firms and knowledge institutions and the absorptive capacity of the firm. Using data for 1,544 from the Danish manufacturing and service sector, the study finds that small firms that fulfill the two requirements are in a better position to introduce less imitative product innovations compared to large firms.

Visser, Evert-Jan, "A comparison of clustered and dispersed firms in the small-scale clothing industry of Lima," *World Development*, Vol.27, No.9, September 1999

This paper provides empirical evidence on the strength and type of clustering advantages, contrasting the performance of small clustered firms with several control groups of dispersed producers in the garment industry of Lima, Peru. Repeated measurements facilitate an evaluation of the ability of clustered firms to respond to pressures arising from the swift trade liberalization carried out in Peru after 1990. The evidence suggests that clustering advantages have been significant, particularly for the smallest firms. Cost reductions and information spillovers are the dominant type of advantages. However, these are passive advantages of clustering. They largely arise at the level of transactions in goods and services, and to a lesser extent in the transformation of inputs into output. While significant, these advantages are insufficient for sustaining competitiveness in the liberalized markets. The clusters run the risk of entropic death if information spillovers remain limited in origin and diversity and if inter-firm co-operation does not cross local borders.

von Hippel, Eric, *The sources of innovation*. New York: Oxford University Press, 1988

von Hippel, Eric and Marcie Tyre, "How learning by doing is done: Problem identification in novel process equipment," *Research Policy*, 24 (1), 1995, pp. 1-12

Vossen, Robert W., "Combining small and large firm advantages in innovation: Theory and examples," Groningen University Research Report, 1998

An overview of possible sources of relative advantage of small and large firms with respect to innovation that have been put forward in the economic and management literature is presented. The relative strengths of large firms lie mostly in resources, while those of small firms are generally argued in terms of behavioral characteristics. The paper argues that it is not either small firms or large firms which are better innovators, but they are likely to play complimentary roles in the process of technical advance, in the sense that they are better at different types of innovation.

Warner, Andrew M., "Small and medium size enterprises and economic creativity," in: UNCTAD, *Improving the competitiveness of SMEs in developing countries. The role of finance to enhance enterprise development*, Geneva/New York: United Nations, 2001; pp. 61-77

Weijland, Hermine, "Micro enterprise clusters in rural Indonesia: Industrial seedbed and policy target," *World Development*, Vol.27, No.9, September 1999

This paper shows the importance of clustering at early stages of development, when clustering is still largely a rural phenomenon and may serve as a survival strategy. It argues, first, that dismally poor but clustered rural micro enterprises may have a

seedbed function for industrial development, and, second, that clustering policy has brought about some success in Indonesia. Data on more than 4000 rural clusters provide insights in the various forces behind cluster gestation, prosperity and dissolution. It is argued that social capital is crucial for the achievement of transaction cost reductions, which attract traders to the clustered enterprises. Ubiquitous search and reach advantages in marketing trigger off clustering processes, but these advantages diminish with overcrowding. Further external economies arise from specialization and technical indivisibilities, but vary significantly by subsector. Consequently, only specific clusters might benefit from public intervention in technology and organization.

Williamson, Oliver E., "Innovation and market structure," *Journal of Political Economy*, 3, 1965, pp. 67-73

Wong, Poh-Kam, "Competing in the global electronics industry: A comparative study of the innovation networks of Singapore and Taiwan," *Industry and Innovation*, 2 (2), 1995, pp. 35-62

Wood, E., "Small firms in the innovation process: An empirical and theoretical perspective," in: Cosh, A.D. and A Hughes (eds.), *Innovation: National policies, legal perspectives and the role of smaller firms*. London: Edward Elgar, 1998

Zuckerman, Ezra W., "On Networks and markets by Rauch and Casella, eds.," (book review), *Journal of Economic Literature*, 41, 2003, pp. 545-565